Patent claims

Particulate composite material, characterized in that it has an average particle size of 20 to 50 μm and contains at most 10 wt.-% particles with a size of < 10 μm .

- 2. Particulate composite material according to claim 1, characterized in that it has a maximum particle size of 70 μm .
- 3. Particulate composite material according to claim 1 or 2, prepared by curing of a mixture of
 - (a) 10 to 80 wt.-%, preferably 10 to 30 wt.-% organic binder;
 - (b) 0.01 to 5\wt.-%, preferably 0.5 to 2 wt.-% polymerization initiator;
 - (c) 20 to 90 wt.-%, preferably 60 to 88 wt.-% inorganic filler,

each relative to the total mass of the uncured mixture.

- 4. Particulate composite material according to claim 3, characterized in that it contains as filler quartz, glass ceramic, glass powder or a mixture of these.
- 5. Particulate composite material according to claim 4, characterized in that it contains glass powder, preferably barium glass powder and/or strontium glass powder.
- Particulate composite material according to one of claims 4 to 5, characterized in that the quartz, glass ceramic and/or glass powder has an average particle size of 0.4 to 1.5 μm , preferably 0.7 to 1.0 μm .

- 7. Particulate composite material according to one of claims 3 to 6, characterized in that it contains 10 to 50 wt.-%, preferably 20 to 30 wt.-% X-ray-opaque filler.
- 8. Particulate composite material according to claim 7, characterized in that it contains ytterbium fluoride.
- 9. Particulate composite material according to one of claims 3 to 8, characterized in that it contains precipitated mixed oxides.
- 10. Composition, containing at least one polymerizable monomer and/or prepolymer, at least one polymerization initiator and at least one particulate composite material according to one of the previous claims.
- 11. Composition according to claim 10, characterized in that it contains
 - (i) 10 to 80 wt \ -% organic binder;
 - (ii) 0.01 to 5 wt √-% polymerization initiator;
 - (iii) 20 to 90 wt. particulate composite filler according to one of claims 1 to 9,

each relative to the total mass of the composition.

- 12. Composition according to claim 10 or 11, characterized in that it contains inorganic filler as a further component.
- 13. Composition according to claim 12, characterized in that it contains as inorganic filler quartz, glass ceramic, glass powder, or a mixture of these.

- 14. Composition according to claim 13, characterized in that it contains glass powder, preferably barium glass powder and/or strontium glass powder.
- 15. Composition according to claim 13 or 14, characterized in that the quartz, glass ceramic and/or glass powder has an average particle size of 0.4 to 2 μ m.
- 16. Composition according to one of claims 12 to 15, characterized in that it contains 25 to 70 wt.-%, preferably 30 to 50 wt.-% quartz, glass ceramic and/or glass powder.
- 17. Composition according to one of claims 12 to 16, characterized in that it contains X-ray-opaque filler as a further component.
- 18. Composition according to claim 17, characterized in that it contains ytterbium fluoride.
- 19. Composition according to one of claims 17 to 18, characterized in that it contains 1 to 10 wt.-% X-ray-opaque filler.
- 20. Composition according to one of claims 12 to 19, characterized in that it contains a layered silicate as a further component.
- 21. Composition according to claim 20, characterized in that it contains 0.05 to 5 wt.-% layered silicate.
- 22. Composition according to one of claims 10 to 21, characterized in that it additionally contains precipitated mixed oxide.

- 23. Composition according to claim 22, characterized in that it contains SiO₂/ZrO₂ mixed oxide.
- 24. Composition according to one of claims 22 to 23, characterized in that the mixed oxide has a particle size of 200 to 300 nm.
- 25. Composition according to one of claims 22 to 24, characterized in that it contains 20 to 70 wt.-% mixed oxide.
- 26. Composition according to one of claims 10 to 25, characterized in that it additionally contains 0.01 to 2 wt.-% additives.
- 27. Use of a composition according to claims 10 to 26 as dental material, in particular as tooth-filling material, material for inlays or onlays, tooth cement, facing material for crowns and bridges, material for false teeth.

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